

REMARKS

Receipt of the Office Action of January 28, 2010 is gratefully acknowledged.

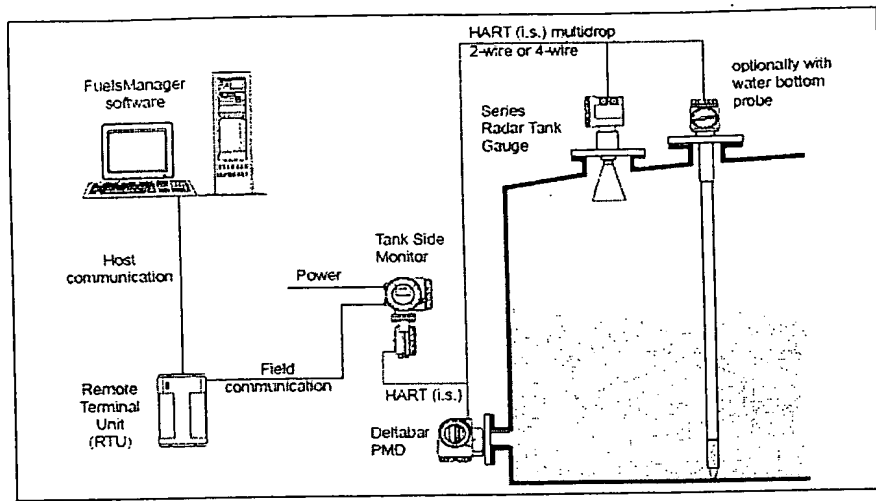
Claims 11 and 15 - 18 have been examined once again and finally rejected as follows: claims 11 and 16 are finally rejected under 35 USC 103(a) over Packwood et al in view of Longsdorf et al and Keyghobad et al; claims 15 and 17 are finally rejected under 35 USC 103(a) over Packwood et al in view of Longsdorf et al , Keyghobad et al and Fite; and claim 18 is finally rejected under 35 USC 103(a) over Packwood et al in view of Longsdorf et al , Keyghobad et al and Westfield et al.

In reply, first, please consider a few general comments regarding the converter unit of the invention. The converter unit (e.g Tank Side Monitor manufactured by the assignee firm of Endress+ Hauser) is a supervisory control and data acquisition interface for tank or process monitoring. In operation, it is connected to the field devices, as transmitters, sensors and actuators, and to a remote control room.

The Tank Side Monitor is a field device for the integration of tank sensors into tank inventory systems. It is used in tank farms, terminals and refineries. Especially, it can be used in connection with Radar Tank Gauges for inventory control and the high-accuracy Radar Tank Gauges for custody transfer applications.

The Tank Side Monitor is typically installed at the bottom of the tank and allows access to all connected tank sensors. Typical process values measured by the sensors are level, temperature (point and/or average), water level measured by capacitive probe, hydrostatic pressure for hydrostatic tank gauging, or hybrid tank measurements, secondary level value for critical applications.

The Tank Side Monitor collects the measured values and performs several configurable tank calculations. All measured and calculated values can be displayed at the on-site display. Via various industry field communication protocols, the Tank Side Monitor can transfer the values to an inventory control system. See the following sketch.



The converter unit e.g. the Tank Side Monitor is connected to the control room via communication module and a signal line SL supporting one of various industry standard communication protocols (Whessoematic WM550, Varec Mark/Space, Sakura Vi , Tiway etc.).

The tank side monitor is connected to the field devices via accordingly designed terminals using applicable standards, e.g. the HART, Profibus or Fieldbus Foundation bus. These communication standards are different from the standards used for the communication of the system to the remote control room. Because of the different communication standards used on the various communication paths.

"Especially in the case of tank farms, refineries, pipelines, etc., long signal lines of multiple kilometers are needed, in order to connect the individual process components with the control room.

The transmission standards (HART, Profibus, Foundation Fieldbus) known in the field of process automation technology are not suited, or are only conditionally suited, for such long signal paths. Therefore, often used in the case of existing tank farms are various communication systems (communication protocols, or communication technologies), such as, e.g. Whessoematic WM550, Varec Mark/Space, Sakura Vi , Tiway, etc., which are especially adapted for data transmission over relatively long signal lines." (See page 1 of the specification).

Fieldbus Protocols - The Tank Side Monitor (Endress+Hauser Product NRF590) supports all of the following industry standard communication protocols allowing it to be integrated with existing instrumentation and connect to host computer systems without the need for additional hardware. These protocols allow for piece-by-piece replacement and upgrading of older technologies to modern radar solutions.

Sakura V1 -V1 protocol provides a standard form of digital communication via a two-wire system. V1 was brought to the market by Sakura Endress and meets the demands of the Japanese market. Max. distance: 6000 m. The V1 protocol provides 2 wire communication allowing up to 10 devices to operate on a loop.

The Tank Side Monitor implementation of the V1 slave protocol supports various old and new V1 protocols:

- V1 (new V1)
- MDP (old V1)
- BBB (old V1)
- MIC+232 (old V1) (in preparation)

EIA-485 (RS485) Modbus - In Modbus, the flow of data between two devices uses a master/slave protocol. The NRF590 acts as a Modbus slave and runs on the EIA-485 (RS) version of the MODBUS communications board. Modbus provides Varec MFT parameter mapping for easier setup in retrofit applications. It provides direct connection to PLC and DCS systems. The NRF590 protocol uses a shielded 3-wire EIA-485 hardware interface to communicate with the modbus master. EIA-485 is a high speed, differential communications network that allows up to 32 devices to operate on one network.

Max distance: 4000 ft (1300 m)

Whessoematic WM550 - The WM550 protocol provides a standard form of digital communication via dual current loops. WM550 was developed by Endress+Hauser (formerly Whessoe) to facilitate communications to transmitters installed on mechanical float and tape gauges. It is a two-wire system and the only protocol with a redundant loop. The WM550 protocol provides 2 wire, current loop

communication and allows up to 16 devices per loop. For redundancy (safety function) two wire pairs are used. They always transmit the same values.

Max. distance: 7000 m

ENRAF BPM - The Bi-Phase Mark (BPM) protocol provides compatibility to Enraf systems by emulating the Enraf GPU-BPM protocol. The NRF590 is fully compatible to ENRAF (802, 812), 811, 854 and 954 series servo gauges, 813 MGT (mechanical gauge transmitter), 872, 873 and 973 series Radar gauges, 874 AIM (Analogue Input Module) and the 875 VCU (Valve Command Unit). The Enraf BPM protocol provides 2 wire communication allowing up to 10 devices to operate on a loop.

Max. distance: 10000 m

Mark/Space - The Mark/Space protocol provides compatibility with Varec transmitters using a standard form of digital communication via a voltage mode bus. Mark/Space was developed to facilitate communication to transmitters installed on mechanical float and tape gauges. It supports product level, temperature and discrete inputs.

L&J Tankway - L&J Tankway protocol provides a standard form of digital communication via a voltage mode bus. Tankway supports product level, temperature and discrete inputs.

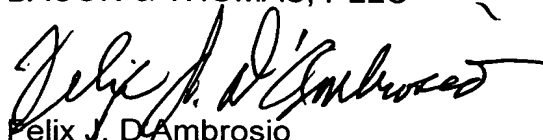
GPE - GPE protocol provides a standard form of digital communication via a current loop. It is compatible with L&J and GPE mechanical float and tape and servo instrumentation.

With the above understanding in mind, claims 11 and 15 have been further amended and claim 16 cancelled as it is now combined with claim 11

In view of the above commentary and the noted amendments, reconsideration in this RCE application is respectfully requested and claims 11, 15, 17 and 18 found allowable.

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Respectfully submitted,
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